

Development of Novel and Emerging Technologies for the Accurate Detection and Diagnosis of Polymicrobial Infections in Biomedical Laboratory Animal Models

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The official link for this solicitation is: <http://grants.nih.gov/grants/guide/pa-files/PA-11-341.html>

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Description:

Microbial infections in biomedical laboratory animal models have become an increasingly important topic, because the constant possibility of outbreaks that may threaten the survival or utility of biomedical animal models available for current and future research needs. This funding opportunity announcement (FOA) encourages applications from small business concerns (SBCs) for Small Business Technology Transfer (STTR) projects that propose development of reagents and equipment for the detection and identification of infectious agents, including those involved in vertical transmission of diseases into embryos and larvae. These projects are of particular interest since they may impact the ability to produce and preserve wild type, transgenic, knockout, and mutant stocks that provide biomedical researchers with many useful animal models for the study of human diseases. The requirements to maintain these models as pathogen-free can become overwhelming, because of latent potential contamination with known, unknown or opportunistic microbes.

To help address this issue, the NIH's National Center for Research Resources (NCRR) sponsored a workshop in 2009 to identify current problems and future challenges relevant to the control and detection of emerging and re-emerging pathogens in animal resource facilities. A meeting recommendation encouraged the development of novel and emerging technologies that may increase the sensitivity and specificity of diagnostic tests to accurately detect polymicrobial

infections/contaminations. To help address this recommendation, NCRR invites applications from SBCs to develop tools for automated detection and identification of polymicrobial agents that may threaten the survival of valuable aquatic, nonhuman primate, and rodent genetic stocks, and potentially other species. Therefore, this FOA seeks to stimulate research and development of a system that is sensitive, selective, automated, and cost/size effective for rapid detection and identification of microbes and that will be available commercially as a standardized, streamlined procedure; easy to operate and maintain by a single person. Ideally, most of the process would be automated and all of the possible components should be integrated into a single unified platform. Associated automated data acquisition and data analysis is highly encouraged. Platforms for automated molecular detection of individual or simultaneous microbial pathogens may include, but are not limited to: pathogen-specific antigens used for detection (ELISA, multiplex); mass tags, genetic or transcript markers (arrays/chips-based), nanoparticle based biosensors, and high-throughput genome sequencing. The use of complementary technologies is also encouraged. Microbial pathogens may include but are not limited to bacteria and related microbes, virus, fungus, parasites (such as protozoan) and prions. The target species for this FOA include, but are not limited to, rodents, nonhuman primates, and aquatic models used in biomedical research. Applications proposing research projects involving predominantly agricultural/farm/companion animals will be given lower priority.